

AMENDMENTS TO THE CLAIMS:

1. (currently amended) A method for plotting a ~~graph~~ network topology using a markup language, comprising the steps of:

retrieving first topology information from a data source, wherein the first topology information represents a first portion of a network topology that comprises graphical images that represent nodes and connections between nodes;

receiving ~~first graph~~ the first topology information as a markup language document in response to a request for a first graphic display ~~and upon retrieval of corresponding information from a data source according to the request and conversion of the corresponding information to the markup language document~~, wherein the markup language document is associated with a document type definition that defines how to process ~~the corresponding~~ information in the markup language document to plot a graph based on the information;

plotting a graph of the first portion of the topology, that can be displayed as the first ~~graphic display according to~~ based on the first topology information in the markup language document ~~and associated document type definition; and~~ causing display of the graph ~~as the first graphic display~~ of the first portion of the topology on a display device;

retrieving second topology information from the data source, wherein the second topology information represents a second portion of the network topology;

and

causing display of a graph of (a) at least a portion of the first portion and (b) the second portion of the topology, without retrieving again the first topology information from the data source and plotting again the graph of the first portion of the topology.

- 1 2. (canceled)
- 1 3. (canceled)
- 1 4. (currently amended) The method of claim 1 wherein the first graph topology  
2 information as the markup language document includes  
3 image information for specifying a graphical image representing a focus entity for  
4 plotting in the graph of the first portion of the topology,  
5 label information for specifying a label associated with the graphical image for  
6 plotting in the graph of the first portion of the topology,  
7 connection information for specifying one or more connections between the graphical  
8 image and one or more secondary graphical images; and  
9 wherein the step of plotting the graph of the first portion of the topology is performed  
10 based on the image information, the label information, and the connection  
11 information.
- 1 5. (currently amended) The method of claim 4 wherein the step of plotting the graph of  
2 the first portion of the topology is performed according to a display arrangement in  
3 which the graphical image is substantially centered on the display device with the one  
4 or more secondary graphical images connected to the graphical image in a generally  
5 circular pattern.
- 1 6. (currently amended) The method of claim 4 wherein the first graph topology  
2 information as the markup language document further includes one or more of:  
3 tool tip information for specifying information to display on the display device upon a  
4 first interaction with the graphical image,  
5 click action information for specifying an action to perform upon a second interaction  
6 with the graphical image,

7 menu information for specifying a menu to display on the display device upon a third  
8 interaction with the graphical image; and  
9 wherein the step of receiving the first graph topology information is according to the  
10 markup language document.

1 7. (currently amended) The method of claim 4 wherein the first graph topology  
2 information as the markup language document further includes  
3 menu information for specifying a menu to display on the display device upon a first  
4 interaction with the one or more connections; and  
5 wherein the step of receiving the first graph topology information is according to the  
6 markup language document.

1 8. (currently amended) The method of claim 1 wherein the step of plotting the graph of  
2 the first portion of the topology is performed according to one specified display  
3 arrangement from a plurality of available display arrangements.

1 9. (currently amended) A method for displaying portions of a network topology,  
2 comprising the steps of:  
3 receiving a first markup language document associated with a document type  
4 definition that defines how to process ~~the corresponding~~ information in the  
5 markup language document to plot a graph, the document including  
6 graph information specifying display attributes for plotting ~~the~~ a first portion  
7 of the network topology;  
8 network node information, the node information including  
9 image information for specifying a graphical image representing a first  
10 node for display on a display device,  
11 node label information for specifying a node label associated with the  
12 graphical image for display on the display device,

13 network node connection information specifying a connection between  
14 graphical images and representing a network link between the first  
15 node and a second node;  
16 plotting the first portion of the network topology based on the first markup language  
17 document and associated document type definition;  
18 displaying on the display device, as part of the first portion of the network topology,  
19 the graphical image and the node label for the first node, according to the  
20 node information and the graph information; ~~and~~  
21 displaying on the display device, as part of the first portion of the network topology,  
22 the connection between the graphical image representing the first node and at  
23 least a second graphical image representing the second node, according to the  
24 node connection information and the graph information;  
25 receiving a second markup language document associated with the document type  
26 definition, wherein the second markup language document corresponds to a  
27 second portion of the network topology; and  
28 causing display of graph of (a) at least a portion of the first portion and (b) the second  
29 portion, without again plotting the first portion of the network topology.

- 1 10. (original) The method of claim 9 wherein the network node information further  
2 includes one or more of the following:  
3 tool tip information for specifying information to display on the display device upon a  
4 first interaction with the graphical image,  
5 click action information for specifying an action to perform upon a second interaction  
6 with the graphical image,  
7 menu information for specifying a menu to display on the display device upon a third  
8 interaction with the graphical image; and

9 the method further comprises the step of:  
10 enabling functions initiated by each of the first interaction, the second interaction, and  
11 the third interaction.

1 11. (original) The method of claim 10 wherein the function initiated by the third  
2 interaction includes retrieving a file for displaying information about one or more  
3 network links between the first node and one or more nodes connected to the first  
4 node.

1 12. (original) The method of claim 10 wherein the function initiated by the third  
2 interaction includes retrieving a file for displaying information about one or more  
3 routers associated with the first node.

1 13. (original) The method of claim 10 wherein the function initiated by the third  
2 interaction includes retrieving a file for displaying information about one or more  
3 subnetworks associated with the first node.

1 14. (original) The method of claim 9 wherein the steps of displaying the graphical image  
2 and the node label and displaying the connection are performed according to one  
3 specified display arrangement from a plurality of available display arrangements.

1 15. (original) The method of claim 9 wherein the steps of displaying the graphical image  
2 and the node label and displaying the connection are performed such that the  
3 graphical image is substantially centered on the display element of the display device.

1 16. (original) The method of claim 9 wherein the step of displaying the graphical image  
2 and the node label is performed such that graphical image size is related to the  
3 number of connections to the graphical image.

1 17. (original) The method of claim 9 wherein the network node connection information  
2 includes connection label information for specifying a label associated with the  
3 connection and wherein the step of displaying the connection includes displaying the  
4 connection label.

1 18. (original) The method of claim 17 wherein the connection label information includes  
2 a cost parameter label that reflects the bandwidth capacity of the network link  
3 represented by the connection.

1 19. (original) The method of claim 9 wherein the connection information includes  
2 menu information for specifying a menu to display on the display device upon an  
3 interaction with the connection; and  
4 the method further comprises the step of:  
5 enabling a function initiated by the interaction.

20. (currently amended) A computer-readable medium carrying one or more sequences of  
instructions for plotting a graph network topology using a markup language, wherein  
execution of the one or more sequences of instructions by one or more processors  
causes the one or more processors to perform steps of:  
retrieving first topology information from a data source, wherein the first topology  
information represents a first portion of a network topology that comprises  
graphical images that represent nodes and connections between nodes;  
receiving ~~first graph~~ the first topology information as a markup language document in  
response to a request for a first graphic display ~~and upon retrieval of~~  
~~corresponding information from a data source according to the request and~~  
~~conversion of the corresponding information to the markup language~~  
~~document~~, wherein the markup language document is associated with a

13 document type definition that defines how to process the corresponding  
14 information in the markup language document to plot a graph based on the  
15 information;  
16 plotting a graph of the first portion of the topology, that can be displayed as the first  
17 graphic display according to based on the first topology information in the  
18 markup language document ~~and associated document type definition;~~ and  
19 causing display of the graph ~~as the first graphic display~~ of the first portion of the  
20 topology on a display device;  
21 in response to an interaction with a graphical image from the graph of the first portion  
22 of the topology, retrieving second topology information from the data source,  
23 wherein the second topology information represents a second portion of the  
24 network topology; and  
25 causing display of a graph of (a) at least a portion of the first portion and (b) the  
26 second portion of the topology, without again retrieving the first topology  
27 information from the data source and plotting the graph of the first portion of  
28 the topology.

1 21. (currently amended) The computer-readable medium of claim 20 wherein the first  
2 ~~graph~~ topology information as the markup language document includes  
3 image information for specifying a graphical image representing a focus entity for  
4 plotting in the graph of the first portion of the topology,  
5 label information for specifying a label associated with the graphical image for  
6 plotting in the graph of the first portion of the topology,  
7 connection information for specifying one or more connections between the graphical  
8 image and one or more secondary graphical images; and

9 wherein execution of the one or more sequences of instructions by one or more  
10 processors causes the one or more processors to perform the step of plotting  
11 the graph of the first portion of the topology based on the image information,  
12 the label information, and the connection information.

1 22. (currently amended) A computer-readable medium carrying one or more sequences of  
2 instructions for displaying portions of a network topology, wherein execution of the  
3 one or more sequences of instructions by one or more processors causes the one or  
4 more processors to perform steps of:

5 receiving a first markup language document associated with a document type

6 definition that defines how to process ~~the corresponding~~ information in the

7 markup language document to plot a graph, the document including

8 graph information specifying display attributes for plotting ~~the~~ a first portion  
9 of the network topology;

10 network node information, the node information including

11 image information for specifying a graphical image representing a first  
12 node for display on a display device,

13 node label information for specifying a node label associated with the  
14 graphical image for display on the display device,

15 network node connection information specifying a connection between

16 graphical images and representing a network link between the first  
17 node and a second node;

18 plotting the first portion of the network topology based on the first markup language  
19 document and associated document type definition;



20 displaying on the display device, as part of the first portion of the network topology,  
21 the graphical image and the node label for the first node, according to the  
22 node information and the graph information; ~~and~~  
23 displaying on the display device, as part of the first portion of the network topology,  
24 the connection between the graphical image representing the first node and at  
25 least a second graphical image representing the second node, according to the  
26 node connection information and the graph information;  
27 in response to an interaction with the graphical image representing the first node,  
28 receiving a second markup language document associated with the document  
29 type definition, wherein the second markup language document corresponds  
30 to a second portion of the network topology; and  
31 causing display of a graph of (a) at least a portion of the first portion and (b) the  
32 second portion, without again plotting the first portion of the network  
33 topology.

23. (original) The computer-readable medium of claim 22 wherein the network node  
connection information includes connection label information for specifying a label  
associated with the connection and wherein execution of the one or more sequences  
of instructions by one or more processors causes the one or more processors to  
perform the step of displaying the connection including displaying a label  
representing a cost parameter that reflects the bandwidth capacity of the network link  
associated with the connection.

24. (currently amended) A computer system comprising:  
a network interface;  
a memory; and

2/10/2018

one or more processors connected to the network interface, the one or more  
processors configured for  
retrieving first topology information from a data source, wherein the first  
topology information represents a first portion of a network topology  
that comprises graphical images that represent nodes and connections  
between nodes;  
receiving ~~first graph~~ the first topology information as a markup language  
document in response to a request for a first graphic display ~~and upon~~  
~~retrieval of corresponding information from a data source according to~~  
~~the request and conversion of the corresponding information to the~~  
~~markup language document~~, wherein the markup language document  
is associated with a document type definition that defines how to  
process ~~the corresponding~~ information in the markup language  
document to plot a graph based on the information;  
plotting a graph of the first portion of the topology, that can be displayed as  
~~the first graphic display according to~~ based on the first topology  
information in the markup language document ~~and associated~~  
~~document type definition; and~~  
causing display of the graph as ~~the first graphic display~~ of the first portion of  
the topology on a display device;  
in response to an interaction with a graphical image from the graph of the first  
portion of the topology, retrieving second topology information from  
the data source, wherein the second topology information represents a  
second portion of the network topology;  
causing display of a graph of (a) at least a portion of the first portion and (b)  
the second portion of the topology, without again retrieving the first

30 topology information from the data source and plotting the graph of  
31 the first portion of the topology.

- 1 25. (currently amended) An apparatus for displaying a network topology, the apparatus  
2 comprising:  
3 means for receiving a first markup language document associated with a document  
4 type definition that defines how to process ~~the corresponding~~ information in  
5 the markup language document to plot a graph, the document including  
6 graph information specifying display attributes for plotting ~~the~~ a first portion  
7 of the network topology;  
8 network node information, the node information including  
9 image information for specifying a graphical image representing a first  
10 node for display on a display device,  
11 node label information for specifying a node label associated with the  
12 graphical image for display on the display device,  
13 network node connection information specifying a connection between  
14 graphical images and representing a network link between the first  
15 node and a second node;  
16 means for plotting the first portion of the network topology based on the first markup  
17 language document and associated document type definition;  
18 means for displaying on the display device, as part of the first portion of the network  
19 topology, the graphical image and the node label for the first node, according  
20 to the node information and the graph information; ~~and~~  
21 means for displaying on the display device, as part of the first portion of the network  
22 topology, the connection between the graphical image representing the first

23 node and at least a second graphical image representing the second node,  
24 according to the node connection information and the graph information;  
25 means for receiving a second markup language document associated with the  
26 document type definition in response to an interaction with the graphical  
27 image representing the first node, wherein the second markup language  
28 document corresponds to a second portion of the network topology;  
29 means for causing display of a graph of (a) at least a portion of the first portion and  
30 (b) the second portion, without again plotting the first portion of the network  
31 topology.

1 26. (canceled)

1 27. (canceled)

1 28. (canceled)

1 29. (canceled)

1 30. (canceled)

1 31. (new) The method of claim 1, wherein the step of retrieving the second topology  
2 information comprises retrieving the second topology information in response to an  
3 interaction with a graphical image from the graph of the first portion of the topology.

1 32. (new) The method of claim 9, wherein the step of receiving the second markup  
2 language document comprises receiving the second markup language document in  
3 response to an interaction with the graphical image representing the first node.

1 33. (new) The computer-readable medium of claim 20, wherein the instructions cause the  
2 one or more processors to perform the step of retrieving the second topology

3 information in response to an interaction with a graphical image from the graph of the  
4 first portion of the topology.

1 34. (new) The computer-readable medium of claim 22, wherein the instructions cause the  
2 one or more processors to perform the step of receiving the second markup language  
3 document in response to an interaction with the graphical image representing the first  
4 node.

---

1